

## REMARKS

### *Rejection of Claims 1, 2, 4 and 10 Under 35 U.S.C. § 112*

Claims 1, 2, 4 and 10 were rejected under 35 U.S.C. § 112, first paragraph for failing to comply with the written description requirement by not disclosing auto-correlation in the specification. Applicants respectfully disagree with the rejection because auto-correlation is described in the written description as well as inherent in the language of the claims.

The term “auto-correlation” is known to those of ordinary skill in the art. Auto-correlation is defined in the publication Wireless Communications and Networks: “[a]utocorrelation...is the correlation of a sequence with all phase shifts of itself.” (Stallings, William, 2002, Prentice-Hall, p. 192). This is disclosed in the Applicants’ written description on p. 12, first full paragraph: “After obtaining  $p(t)$  and  $p(t-\tau)$ , a correlation of the two functions is taken. In a presently preferred embodiment the correlation is calculated by taking an average over time of  $p(t)p^*(t-\tau)$ , where  $p^*(t-\tau)$  is the conjugate of  $p(t-\tau)$  as will be understood by one of skill in the art.” One of ordinary skill in the art would recognize that correlating a function with its delayed conjugate is correlating the sequence with a phase shift of itself, and is therefore, auto-correlation as opposed to cross-correlation.

The auto-correlation is also inherent in claim 1. Claim recites that the “contents of the second interval of the second received sequence are the additive inverse of the contents of the first interval of the second received sequence, and further, “calculating an auto-correlation function based on the total sum functions for the first and second sets.” Because the “first and second sets” are calculated “as the sum of the contents of the first and second intervals, respectfully, for each set,” the correlation is actually between the first received sequence, and the additive inverse of the first received sequence, and therefore, is an auto-correlation function.

Because auto-correlation was described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention, the rejection under 35 U.S.C. § 112, first paragraph, must be withdrawn.

***Rejection Under 35 U.S.C. § 112 and Objection to Claim 14***

Claim 14 and dependent claims 15-34 were rejected under 35 U.S.C. 112 because of insufficient antecedent basis for the limitation “the received total sum” in claim 14. Claim 14 has been amended to provide sufficient antecedent basis, as well as to overcome the stated objection. Therefore, this rejection must be withdrawn.

***Rejection Under 35 U.S.C. § 102***

Claims 1-13 were rejected under 35 U.S.C. § 102(e) as being anticipated by Dabak et al. Claim 1 recites “calculating an auto-correlation function based on the total sum functions for the first and second sets.” Dabak does not disclose calculating an auto-correlation function.

As discussed above, the claims and written description of the current disclosure disclose an auto-correlation function because the function is being correlated with a conjugate of itself. Dabak discloses a cross-correlation function, but not an auto-correlation function. Cross-correlation is compared to auto-correlation in Wireless Communication and Networking where “the comparison is made between the two sequences from different sources rather than a shifted copy of a sequence with itself.” (Stallings, William, 2002, Prentice-Hall, p. 192).


In Dabak, there are a number of fingers that each receive different signals from different users. (Dabak, col. 7, lines 15-16, “There are L fingers which despread received signals from K users”). Cross-correlation is performed on these signals: “A cross-correlation matrix is

calculated and stored in memory circuit 802 to determine the interference effect of each path of each finger of each user on all the other paths.” (Dabak, col. 7, lines 46-48). Dabak is not correlating between a sequence and itself, but rather between separate and distinct received signals, thereby disclosing cross-correlation. In fact, Dabak actually explicitly *excludes* auto-correlation from occurring: “Then the middle LK matrix diagonal is set to zero to exclude self-correlation.” (Dabak, col. 7, lines 53-54). Therefore, claim 1 is not anticipated by Dabak, and the rejection should be withdrawn.

For the foregoing reasons, the Applicants respectfully submit that this application is in condition for allowance. The Examiner is, therefore, respectfully requested to pass this case to issue.

Respectfully submitted,

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